LineUp With Math™ Alignment
Mathematics Grade Expectations

Standard 7.6: Arithmetic, Number, and Operation Concepts

Grade Expectations	***LineUp With Math™* Activities**
M7: 1 Demonstrates conceptual understanding of rational numbers with respect to <u>percents</u> <u>as a means of comparing the same or different parts of the whole when the wholes vary in magnitude (e.g., 8 girls in a classroom of 16 students compared to 8 girls in a classroom of 20 students, or 20% of 400 compared to 50% of 100)</u>; and <u>percents as a way of expressing multiples of a number (e.g., 200% of 50)</u> **using models, explanations, or other representations.*** M(N&O)-7-1	--Use percent relationships to resolve distance, rate, time conflicts in air traffic control.
M7: 4 Accurately solves problems involving <u>proportional reasoning</u>; percents <u>involving discounts, tax</u>, or <u>tips</u>; and <u>rates</u>. M(N&O)-7-4	--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.
M7: 7 Estimates and evaluates the reasonableness of solutions appropriate to grade level.	--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

Standard 7.7: Geometry and Measurement Concepts

Grade Expectations	***LineUp With Math™* Activities**
M7: 15 Measures and uses units of measures appropriately and consistently when solving problems across the content strands. Makes conversions within systems**.**	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Standard 7.8: Functions and Algebra Concepts

Grade Expectations	***LineUp With Math™* Activities**
M7: 20 Demonstrates conceptual understanding of linear relationships ($y = kx$; $y = mx + b$) **as a constant rate of change** by <u>solving problems involving the relationship between slope and rate of change</u>, by <u>describing the meaning of slope in</u>	--Use an interactive simulator to identify distance, rate, time conflicts in air traffic control problems and resolve the conflicts by varying plane speeds or changing plane routes.

concrete situations, or informally determining the slope of a line from a table or graph; **and distinguishes between constant and varying rates** of change in concrete situations represented in tables or graphs; **or describes how change in the value of one variable relates to change in the value of a second variable** in problem situations with constant rates of change. M(F&A)–7–2	

Standard 2.5: Mathematical dimensions, Standard 7.10: Mathematical Problem Solving and Reasoning - Applications

Grade Expectations	***LineUp With Math™* Activities**
M7: 30 Demonstrate understanding of mathematical problem solving and communication through: • **Approach & Reasoning**—The reasoning, strategies, and skills used to solve the problem; • **Connections**—Demonstration of observations, applications, extensions, and generalizations; • **Solution**—All of the work that was done to solve the problem, including the answer; • **Mathematical Language**—The use of mathematical language in communicating the solution; • **Mathematical Representation**—The use of mathematical representation to communicate the solution; and • **Documentation**—Presentation of the solution.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. --Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts.